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ABSTRACT

The Cognitive Curriculum focuses primarily on intellectual, or cognitive development of the child. Much of its theory is based on the work of Piaget and is concerned with the development of logical thinking and representation. A central tenet is that the child learns through active involvement with his environment and that the child undergoes stages of development. Four cognitive skill areas: classification and seriation, spatial and temporal relations, predictability, and transformation are objectives suitable for the preschool child. The structured classroom environment is not intended to be a substitute for good teaching nor does it replace the need for action and interaction among children. It simply provides the child with support and the opportunity to achieve academic successes in the program. Descriptions of the role of the cognitive teacher, specific curriculum activities, and lesson plans make this document a practical guide to understanding the operation of a cognitive curriculum in preschool. (WY)

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Ypsilanti Preschool Curriculum Demonstration Project

THE COGNITIVE CURRICULUM

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THE THEORETICAL FRAMEWORK OF THE COGNITIVE CURRICULUM

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The cognitive curriculum focuses primarily on the intellectual, or cognitive, development of the child. Much of the theory is based on the work of the Swiss psychologist Jean Piaget concerning the development of logical thinking and representation--the processes by which a child develops knowledge about himself and objects, sees relationships between himself and objects, groups and orders the objects and events in his world, and begins to use symbols to represent what he sees and knows.

Piaget has shown that a child's intelligence develops in stages related to age. Each new stage builds on the previous stage and brings with it new abilities which determine what can be learned during this period. The order of stages holds true for all children, but the age range in which each stage evolves depends on the quality of the physical and social environment in which the child matures.

A central tenet of Piaget's theory is that a child learns through active involvement with his environment. Piaget found that during each period a child has a characteristic way of looking at and thinking about the world that is different from that of an adult.

Stage 1: Sensory-Motor (0-2 years)

The child's actions, which are at first aimless (from the adult's point of view) begin to show purpose, and he develops the concept of the permanent character of objects and begins to recognize objects through senses other than sight. In this stage, the child forms mental images of the objects and persons in his environment.

Stage 2: Preoperational (2-7 years)

The child uses symbols but in a very crude way. He begins to use words to represent objects and actions. The child at this time is guided by how things look; he judges entirely by appearance. For example, in a typical experiment Piaget set out a row of cups and a basket of eggs. He asked the child to put one egg in each cup. Then he asked, "Was there a cup for each egg?" The child said yes. Then Piaget took all the eggs out of the cups and put them in a bunch, leaving the row of cups. Then he asked if there was still an egg for each cup. The child said no, there were more cups. A child at this stage cannot understand that a quantity remains the same when it is arranged differently. This is called "conservation," and it is a key point in Piaget's theory. Until a child has the ability to conserve his thinking will be governed to a great extent by how things look.

A child in the preoperational stage cannot put himself in the position of another or take the point of view of another. When he views an object from a changed perspective, the object becomes a different thing to him because it looks different, and only what the child sees at the moment is true for him. Piaget's own small child was the subject of one of his most famous observations on perspective. The child had a view of a mountain from his window in their home in Geneva. One day, Piaget and the child took a trip to the mountain in a car. When they got to the base of the mountain, the child didn't recognize this as the same mountain he had seen from his window. Later, when they drove around the mountain, the child still couldn't understand that this was the same mountain. When the perspective from which he views an object is changed (in this case both the position and the distance were changed), the preoperational child cannot understand that the object remains the same.

The preoperational child gives his attention only to one characteristic of an object at a time. For example, in Piaget's famous bead experiment, the child understands that all the beads are wooden, that some are brown and some are white, but he cannot reason about the whole (wooden beads) and a part (brown beads) at the same time.

Gradually, in the preoperational stage, the child begins to rely on his own action and thought and judge by what he knows as well as by what he sees. He begins to understand that certain characteristics of an object remain the same even though the appearance of the object changes.

Stage 3: Concrete Operations (7-12 years)

The child begins to deal with his environment through mental representations, or symbols, of actions and objects and no longer needs to physically manipulate objects directly in front of him to draw meaning from them. He can conserve quantity and can understand the relationship between the whole and its parts. He begins to use logic to order the world, though he does not generalize from one situation to another. At this point, he is ready to learn to read and understand number and is beginning to see the relation between cause and effect.

Stage 4: Formal Operations (12-17 years)

At this stage the child is capable of abstract thinking and adult reasoning. He can think about the reality he sees, and the possibilities he cannot see. He can survey a situation, see alternatives and select the one most suitable for solving a problem.

The child's ability to think logically is developed gradually through the four stages, each stage building on the previous stage, the child coordinating and integrating new knowledge with what he has learned in the past.

The preschool is concerned with the child at the preoperational stage of mental development. The teacher in the cognitive program must ask herself two questions about the child at this stage: (1) How does the child think about and view his world? (2) What learning tasks should the child be given at this point in his development? To answer the first question, the teacher must orient herself to Piagetian developmental theory and sharpen her observational skills; the answer to the second question depends upon what she learns through these efforts. The teacher must be able to generate activities and tasks for the children in her preschool class on the basis of what she knows about their developmental level. Her major task is to translate theory into practice in the classroom each day. The cognitive curriculum provides the framework from which she can do this. There are two broad objectives, derived from the work of Piaget:

(1) To help the child develop logical modes of thought
   a. to gain knowledge about himself and objects
   b. to see relationships between himself and things in his environment
   c. to group and order objects and events

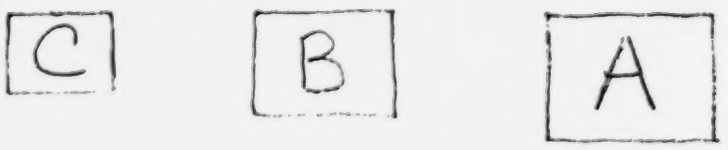
(2) To help the child develop the capacity to manipulate symbols and thus to act on and represent the environment.

THE COGNITIVE SKILL AREAS

To implement these objectives, the cognitive curriculum has defined four cognitive skill areas: classification and seriation, which are the basis for the acquisition of number concept; and spatial and temporal relations, which are important for the understanding of causality (cause and effect), predictability (ascertaining the consequences of actions), and transformation of objects (observing changes).

Classification is learning to recognize likenesses and differences among objects and to group them on this basis. It is an outgrowth of the child's ability to identify the objects in his world. A child in the preoperational stage may group objects in various ways--there is no right or wrong way. The teacher reinforces the child's growing awareness that things go together because they share certain attributes.

Seriation is learning to arrange objects in an order by size, quality or quantity. It is based on making comparisons and is harder for a child than classification. The teacher's goal for the child in the preoperational stage is to help him understand that if A is bigger (or louder, or more) than B, and B is bigger than C, then A is bigger than C:



The ability to seriate and to classify are basic to the understanding of number. Another concept necessary for understanding number is one-to-one correspondence. A small child tends to judge the number of objects in a group by the amount of space occupied by the objects. One-to-one correspondence helps him to establish the numerical equivalence of two rows by matching an object in one row to a corresponding object in the other row. This is easier for a child to do if the objects used are related in some obvious way, such as a row of cups and a row of saucers. Matching in this way is called provoked correspondence. A child understands the concept of number when he can see the number of objects in a group remain the same no matter how they are arranged.

Spatial Relations is (a) the child's understanding of himself in space, moving his body in space in many different positions, in relation to direction and to distance; (b) coordination of his body parts in relation to space; (c) the child's understanding of objects in relation to other objects in space, objects in different perspectives, spatial positions or arrangements; (d) structuring space in part-whole experiences.

Temporal Relations is an understanding of time sequences. The child (a) learns that time periods have a beginning and an end, and (b) learns to order events sequentially. These come about naturally through the child's daily routine, consisting of time sequences having a clearly defined beginning and end. The concepts of first, last, before, after, and next, are constantly reinforced in the cognitive curriculum. The child learns that some events take a short time and some take a long time, as well as that he can move his body slowly and fast. Predictability and temporal order are very closely related and each facilitates the other. An understanding of predictability comes about by the child's action on objects in his environment as he explores their properties and predicts the results of his actions on them. Predictability, in turn, precedes an understanding of cause and effect.

THE LEVELS OF REPRESENTATION

The process through which the child begins to represent and to use symbols to facilitate his reasoning develops through three levels:

(1) Index level. The child's knowledge of the object itself increases. The child can mentally construct the whole object when (a) only part of it is seen, (b) when it is perceived through senses other than sight, and (c) when a part is missing. Making prints of objects is a first representation and is connected to the object itself, preparing the child for the symbol level.

(2) Symbol level. Representations at the symbol level are separate from the objects themselves and for this reason are the first real representations. The child's mental images become stronger, as well as his ability to

use language and become involved in dramatic play.

Imitation is the first step into the symbol world, when the child expresses his mental image of an object with his body. It includes making a sound to represent an object. For example, the child might walk on all fours and pretend he is a dog by moving his body in the fashion of a dog and saying "bow-wow, bow-wow."

Make believe is the use of an object to represent another object. When a child pretends a block is a car, he is using the block to stand for or to represent a car; he might push the block across the floor and make a sound like a motor, and the teacher would then know that the child has a strong mental image of a car, that he understands what a car is.

The child learns to make three-dimensional representations, or models by using such materials as clay, paper and blocks. For example, a child might use blocks to build a model of a house or make animals using clay and pipe cleaners. This kind of representation comes before drawing around outlines of objects.

The child can recognize what is shown in line drawings or pictures of objects and actions, from realistic photographs to more abstract drawings. The child can also make his own drawings.

(3) Sign level. This means written and spoken language, written words, and numerals, which bear no resemblance to the objects they represent and are more a part of concrete operations (stage 3). The preschool does not deal with this level except with regard to spoken language, which is stressed on the symbol level where language is incorporated into the ongoing classroom activities that facilitate the development of mental images.

THE LEVELS OF OPERATION

The cognitive curriculum is based on the assumption that a child learns by interaction with the objects and the people in his environment. The preschool, then, must provide many opportunities for a child to physically experience a wide variety of materials and equipment and must help the child to integrate and elaborate these experiences.

(1) Motoric level. The first level of operation is motoric, which means the child is acting on and experiencing the objects in his environment and is learning concepts through this interaction; he is learning by doing. The child is using his body to experience concepts, using objects to experience concepts, and using objects to act on other objects. The teacher uses language to label, define, and interpret the child's experience, building a foundation for the child's own use of language.

The classroom is equipped with materials and is organized in such a way that a child can group, order, compare and arrange and rearrange

objects. The child learns the physical properties of objects when acted on in different ways: to squeeze, throw, cut, roll, float, fold, drop objects; to predict the results of this manipulation of objects and to observe changes that may or may not take place. The teacher must provide opportunities for the child to move his body in space; to jump, climb, run, hop; to assume different positions; and to experience direction and distance with his body. The child learns to move his body parts in relation to other body parts; to experience an object with his body; to climb on top, to get under and to go around an object. In much the same way, the child must experience time sequences: before he goes home he must put on his coat and then get on the bus; after he cleans up the room he may have juice.

(2) Verbal level. At the verbal level the child is still actively involved with his environment but he is beginning to do the following:

(a) Incorporate and use language more spontaneously while the teacher is providing language stimulation to draw attention to aspects of the environment.

(b) Use language to express himself, describe his actions and label objects. The child tells what he is doing while he is doing it, after he does it and before he does it. Language becomes a tool for communication.

(c) Use words to express himself as a form of communication with other people, to plan, evaluate and interpret his actions, and to describe situations and feelings. Words are abstract symbols that stand for or represent objects, feelings and actions; hence when words become functional for the child it becomes easier for him to decenter, or to see things from another point of view.

The symbol level of representation is very important to language development. Imitation and make-believe, along with verbalization, help the child to form complete and strong mental images. It is necessary to provide opportunities for imitation and dramatic play so that the child can express himself verbally through these activities, that is, put words into his motoric action.

SELECTED ANNOTATED BIBLIOGRAPHY ON COGNITIVE DEVELOPMENT

Almy, Millie, Chittenden, E. and Miller, Paula. Young children's thinking: studies of some aspects of Piaget's theory. New York: Teachers College Press, 1966, 153 pp.

This book describes a project that attempts to study effects of classroom experience on the young child's thinking about natural phenomena. It reviews Piaget's theory of development and learning, describes some methods that test Piagetian ideas, presents the results of a study of individual children who were tested at different ages and children who were tested together at the same age, and discusses the implications of these results for curriculum development. Chapters 1, 2 and 7 in particular are interesting reading, and teachers may also wish to look at the middle chapters, especially chapters 3 and 6, for games which might be adapted for classroom use.

Beard, Ruth M. An outline of Piaget's developmental psychology for students and teachers. New York: Basic Books, 1969.

This book makes representative portions of Piaget's work readily available to the teacher and introduces his specialized vocabulary. It contains a glossary and bibliography.

Brearly, Molly and Hitchfield, Elizabeth. A guide to reading Piaget. New York: Schocken Books, 1966, 171 pp.

Extensive excerpts from Piaget's writings on number, space, geometry, logical thinking, moral judgment, and the child's construction of his environment are presented, followed by discussion designed to help the reader understand Piaget's theory and apply it in an educational setting. For teachers in a cognitively oriented curriculum, this is perhaps the most helpful book on Piaget currently available.

Flavell, J. The developmental psychology of Jean Piaget. New York: Van Nashand, 1965, 472 pp.

This is a comprehensive and readable general survey both of Piaget's theories and his experimental studies, presenting also an evaluation of his work. For those interested mainly in what makes a theory "cognitive," the Introduction and Chapters 1, 2 and 4 are particularly useful. Teachers (as well as students of Piaget's psychology) will find this book an important asset.

Hunt, J. McV. "The psychological basis for using preschool enrichment as an antidote for cultural deprivation." Merrill-Palmer Quarterly, 1964, volume 10, pages 204-248. Also in Hechenger, F. (editor). Preschool education today. New York: Holt, Reinhart, and Winston, 1965.

Despite the longwinded title that might imply a biased middle-class approach to the "disadvantaged," Hunt advocates a strongly educational approach in preschool. He discusses I.Q. changes and what they mean, and the problem of finding an approach to teaching young children that will give them the skills they need for success in school.

Piaget, Jean.

For the nonspecialized reader, Piaget uninterpreted is difficult to understand. However, if one goes to Piaget's books with specific questions regarding how children come to understand the world, he can gain valuable insights. Some of the most relevant of Piaget's books are:

Play, dreams, and imitation in childhood. New York: W.W. Norton, 1962. This book describes the evolution of children's games and discusses Piaget's theories of play and symbolism.

The psychology of intelligence. Patterson, N.J.: Littlefield, Adams, 1960. This is Piaget's most complete presentation of his theory of intellectual development.

The origins of intelligence in children. New York: W.W. Norton, 1962. This book deals specifically with the development of sensory-motor intelligence up to approximately age two.

Six psychological studies. Edited with an introduction by David Elkend. New York: Random House, 1968. Piaget's theory is presented in six essays which discuss some of his most basic and most difficult concepts. Written at different points in Piaget's research, each of these philosophically oriented essays deals with the problem of knowledge: how the child comes to know his world and how universals (logic, extra-temporal truth) develop from particular experiences.

(with Inhelder, Barbel) The psychology of the child. New York: Basic Books, 1969. This is Piaget's latest book; it is a synthesis of the developmental child psychology he has formulated over the last forty years, covering the stages of cognitive growth from infancy to adolescence.

Each of the following books by Piaget can be helpful in giving a teacher ideas for preschool activities, though the teacher will have to adapt these from Piaget's experiments and interviews with children.

The child's conception of number. New York: Humanities Press, 1952.

(with Inhelder, B. Szeminska, A.) The child's conception of geometry. New York: W.W. Norton, 1964. This is one of the clearest of Piaget's books and should give the teacher many ideas for classroom activities.

(with Inhelder, B.) The child's conception of space. New York: Humanities Press, 1956.

The child's conception of the world. Patterson, N.J.: Littlefield, Adams, 1960.

The construction of reality in the child. New York: Basic Books, 1954.

Judgment and reasoning in the child. Patterson, N.J.: Littlefield, Adams, 1959.

Smilansky, Sara. The effects of sociodramatic play on disadvantaged preschool children. New York: John Wiley, 1968, 164, pp.

Smilansky's book examines the way in which children from different backgrounds build up their knowledge of situations and people and how their observations and experiences are reflected in their play with other children. Since many of Smilansky's ideas, particularly that socio-dramatic play can be used to foster cognitive development, have been incorporated into the Cognitively Oriented curriculum, this is an important book for cognitive teachers. Chapter 5 suggests ways in which teachers can make use of the classroom environment to instruct children.

TEACHER ATTITUDES AND COMMITTMENT

It is quite probable that a new teacher in the cognitive curriculum will have to change some of her attitudes about teaching and possibly some of her attitudes about how young children learn. At some point, the teacher must step "inside" the Piagetian framework on which the Cognitively Oriented curriculum is based.

The teacher who has taken this step has incorporated the theoretical framework into her thinking and uses the framework as a window through which she looks at young children in developmental terms and at early education in conceptual terms. At this point the teacher is really "thinking cognitively," and she is taking children and goals rather than methods and activities as starting points for her teaching.

Such an orientation is not at all easy to develop, because it involves a certain period of time--longer for some than for others--in which the teacher is really adrift. She has given up her usual methods of teaching, her fund of "ways to do things children like," and until she has incorporated the new framework into her thinking and found ways to implement the goals within it, she is forced to proceed almost blindly, without the sure signposts and guidelines of a familiar system. In our experience this is a process which all teachers go through as they accept and learn to implement the cognitive curriculum.

A trap that cognitive teachers often fall into is that they think they have changed when in reality they have not. What happens is that they become adept at attaching cognitive labels to activities they used before they became cognitive teachers; the names change but the activities remain the same. When planning, they begin with thoughts about activities that have proved useful in the past rather than about cognitive goals and how to implement them; but they think they have done the latter because they have given their activities cognitive labels. This is not to say that a teacher has to give up all her comfortable ways of doing things in order to become a cognitive teacher. It does mean, however, that she must give up her old ways of thinking about what she does, so that, while she might find that certain activities she has always used are still appropriate, she now chooses them for different reasons.

A common reaction to the theoretical framework of the cognitive curriculum is, "Well, I think that children probably do learn that way, but I think you don't have to teach children so specifically. I think children just learn automatically if you provide a warm setting with lots of opportunities for interaction with other children and lots of equipment."

While it is true that most children do "just learn automatically," experience with disadvantaged children indicates that warmth alone is not enough and that providing numerous opportunities can make the environment so complex that the children are overwhelmed. We feel that one of the strong points of the cognitive curriculum is that the teacher has at her disposal a sequenced set of steps that enables her to work with her children at any given level. In other words, if certain simple and concrete experiences would be most beneficial, she can start with these, but if a more complex environment can be utilized and abstract tasks worked with, she has a framework for implementing these. If the teacher discovers that something just "doesn't work," she can go back a step and reinforce the concepts on the preceding level, and then later she can go on to the more mature level. And certainly through all of this, there is a place for warmth.

Since the involvement of the teacher is one of the crucial aspects which determine the success or failure of the program, there is a need for a major committment on the part of the teacher to the total curriculum and the point of view behind it. In other words, the teacher must believe that she <u>can</u> help to effect changes in the cognitive/intellectual abilities of her children and in the attitudes of their families toward education, and that a goal-centered, sequenced cognitive curriculum with home visits is a logical and systematic means for producing these changes.

The goals of the cognitive program are predetermined, having been derived from Piagetian theory and experience with disadvantaged children. The teacher must be able to accept these predetermined goals and then implement them by employing a variety of activities and experiences. This means that the teacher must work within the confines of the overall curriculum, but she must also be able to creatively implement what the structure and the children require. Thus teaching in a cognitively oriented program requires a great deal of flexibility on the part of the teacher, who must be strongly committed and willing to think in new ways about what should take place in the classroom.

STRUCTURE OF THE CLASSROOM

In the cognitive program, the classroom is set up in specified ways to facilitate and reinforce certain goals. While this structure undoubtedly contributes a frame of reference for the children, it is only one of a variety of elements (albeit an important one) used by the teachers to provide experience with the concepts and content areas of the curriculum. Since the classroom structure is changed gradually through the course of the program, the child encounters the concepts in many guises and this enables him to begin to separate concept from context. For example, if a child should encounter "big" chiefly or only through playing with big trucks, his concept of

"big" may be tied so closely to the context of "truckness" that he will not see that "big" can be applied to other objects and situations. Concept formation is facilitated, then, through experiencing concepts in a variety of contexts, and the emerging concepts are, at the same time, reinforced through these repeated encounters. Children come to know the world by physically experiencing their environment; structuring the classroom environment in such a way that certain concepts are emphasized provides a variety of opportunities for direct experience with these concepts, thereby facilitating the child's mastery of them.

Example: <u>An Environment Programmed for Learning in the Areas of Classification and Seriation</u>

The classroom is structured to facilitate and reinforce goals from the content areas of classification and seriation. These goals lend themselves to environmental structuring; that is, they can be used to provide the child with opportunities to group (classify) and order (seriate) classroom objects. We have planned and equipped our preschool rooms in such a way that the environment structures the child's learning and enables him to deal with classification and seriation through the simplest manipulations at the beginning of the year to more complex ones later in the year. The room is arranged so that each child is automatically involved, regardless of the area in which he is working, in activities designed to implement the goals we have set.

For the first six weeks of school, the goal is for the children to learn to classify things that are the "same" and "different." Therefore, all blocks are kept in one cabinet and all cars in another cabinet, all dishes are kept in one cupboard and all utensils in another, and all books are shelved together while puzzles are on a different shelf. We realize that a similar kind of classroom arrangement is often set up in preschools, but this is done to maintain order rather than to differentiate "same" and "different," so that, while blocks and cars may belong in specific places, they are not necessarily separated.

At the beginning of the school year we limit the kinds of equipment available in the classroom and classify according to <u>gross</u> differences, e.g., vehicles vs. blocks. As the children gain the ability to classify in terms of overall differences, the environment is changed and enriched, so that, for example, instead of simply putting all scissors in one place, the children now must distinguish sharp from blunt scissors and put these away in separate places. In this way they become aware of differences within a class.

We also arrange the environment to teach seriation, or ordering of quantities and qualities. By the end of the year, the goal for the children is to be able to order five items by size and understand numbers to 4 or 5, and to be able to order qualities on the basis of rather subtle differences.

In planning for this learning, we initially organize the classroom environment so that the children experience just two sizes--big and little. We provide two sizes of hollow blocks, two sizes of unit blocks, two sizes of cars, in each case offering the largest possible difference in size. We try to make the articles identical except for size, to assure that this concept will be the one learned. Everything in the room reinforces the concept of size at the level of large and small. When the children are ready, their experiences are enlarged by additions to the environment, e.g., a third size of block, car, pot, spoon.

While we are working with sizes, we are also giving the children experience with ordering qualities, such as hard and soft; eventually they should be able to distinguish not only hard and soft but gradations between these two extremes.

This structured classroom environment is not intended to be a substitute for good teaching, nor does it replace the need for action and interaction among the children or between the children and teacher. Rather, the constant reinforcement of concepts which the structured classroom provides gives the child the opportunity to absorb a conceptual framework that will support him in school and thus help him to achieve academic success.

STRUCTURE OF THE CLASS DAY

The following sample daily schedule gives a sequence of activity periods, the approximate amount of time spent in each, the focus of each period and the types of goals and activities which might easily be worked into it.

Daily Schedule

Planning Time (approximately twenty minutes)

Routine: The teacher verbally reinforces the routine of the day, i.e., what we do first, next, etc. Later in the year some of the children should be able to verbalize the routine in terms of what comes first, next, etc. during the day.

Planning for work time develops the children's ability to plan ahead. Planning consists of (1) having a goal before-hand and (2) controlling impulses while working toward that goal. Within this planning time it is the teacher's responsibility to develop the children's ability to utilize a variety of materials; e.g., the teacher may present a choice of two or three activities or materials and ask the child what he would like to do or use.

Work Time (approximately forty minutes)

At Work Time, the children work in the area they chose during Planning Time. During this part of the day the teacher helps the child develop his ability to concentrate, for increasingly long periods of time, on his chosen task. The teacher should insist that the child stick to his chosen activity until it is completed and should try to assure that the child enjoys the activity. When he is finished, the child may choose to work in another area, but the teacher should see to it that he changes his plan at the planning board. The teacher also encourages the child to integrate the knowledge he gains from working in the several work areas.

At any given time, the teacher should work only on concentration or integration, but not both. She may work on either with different children or with groups of children.

Art Area: The teacher may provide a specific goal-centered activity for this area, e.g., use of three sizes of one shape for a seriation activity. On the other hand, the area may be "open" to the children so that they may make materials for use in other work areas; e.g., children may make "money" representations to be used in a large-motor activity where a grocery store has been set up. Another example would be making representations of food from playdough to be used in the doll corner. Certain materials should always be readily available to the children: crayons, scissors, pencils, paper, paste, shapes for tracing.

Large Motor Area: The equipment contained in this area--hollow blocks, boards, variplay with slide, riding toys--should be used to implement predetermined goals. For instance, the variplay might be used to teach spatial concepts on the motoric level. The teacher should always select only one goal at a time.

Doll Corner: This is a housekeeping unit where the children can assume various roles. It provides excellent opportunities for developing sociodramatic play skills.

Quiet Area: The quiet area is that part of the room which contains "table activity" materials. Again, the materials are selected by the teacher to implement predetermined goals. This area includes such items as unit blocks, puzzles, books, beads, doll houses, rubber people and animals, and small cars and trucks.

Group Meeting for Evaluation (approximately ten minutes)

The purpose of this period is to develop the child's ability to be objective about his work, i.e., to evaluate his work and to know how to go about improving it. The teacher encourages the entire group to talk about what each child has done during Work Time, the different ways they have used the material and equipment, "good" things children have done, how each child feels about his own work, and how children can work more constructively during the next Work Time.

Cleanup (approximately fifteen minutes)

Materials and Equipment: This time period provides an excellent opportunity for the teacher to reinforce the concepts dealt with throughout the day. For instance, when putting the large hollow blocks away, the teacher may reinforce a classification concept by saying, "All of the big blocks go here." The children also tell why they are putting certain materials in particular places.

Bathroom: Spatial concepts can be effectively reinforced during this period. For example, if the children are waiting in line, emphasis is placed on beside, in front of, in back of.

Juice and Group Time (approximately thirty minutes)

The children are separated into groups at this time. This allows each teacher (or aide) to work more intensively on specific goals with a relatively small number of children. It also allows her to capitalize on every event to reinforce predetermined goals; e.g., when passing out the cookies, the teacher and children talk about who is first, next, or last.

Activity Time (approximately twenty minutes)

The teacher decides each day whether Activity Time will be outdoors or indoors.

Indoor: During this period, the total group is involved in motor activities chosen to facilitate and reinforce predetermined goals. Rhythm instruments, songs with motions, circle games, and ball games can all be used to express concepts both motorically and verbally.

Outdoor: Swings, a slide, a merry-go-round, concrete cylinders (three sizes), etc. can be used to reinforce goals. For instance, the slide can be used for motorically experiencing the spatial concepts "up" and "down," or it can be used to develop the spatial concepts "first" in line, "next," or "in front of" "in back of." The merry-go-round may be used for experiencing "start" and "stop." Outdoor activities can also give the child opportunities for experiencing seriation concepts, such as fast/slow (when running), or spatial concepts, such as up/down (when hopping). It is the teacher's responsibility to choose the goals to work on and then introduce appropriate activities.

Circle Time (approximately fifteen minutes)

This portion of the day is devoted to "winding-up" and reviewing the day's work by talking about what was done. This time can also be used to read stories which reinforce a specific goal.

Dismissal (approximately ten minutes)

This time segment is also viewed as a teaching time. The teacher may, for example, encourage the children to sing while they are getting dressed to go home, in order to emphasize concepts worked on during the day--"Put your mitten on your hand, on your hand" could refer to the spatial concept "on" or to the concept that "things go together" because they are related in some way.

Summary

The daily routine is the chief means by which the teachers implement the goals from the curriculum content area of temporal relations. To this end, the daily routine is made as tangible and concrete for the children as possible, so that they can begin to deal with and master temporal concepts. The routine for the class day usually does not vary and is followed throughout the school year, with the result that the children come to anticipate time periods and to mentally reconstruct past events. This invariance contributes a certain predictability to class days, and the several definite time periods within the day contribute to the development of the child's conception of time sequences and lengths of time. The time periods are often set off from each other by an auditory signal, e.g., the sound of a tambourine, which marks the end of one period and the beginning of another.

In following the routine within the day and from day to day, the children learn to deal with the concepts beginning and end; they learn to order events in terms of periods of time; and they develop an understanding of the idea that time periods can have different lengths. The teacher verbally reinforces these goals throughout the class day; e.g., "What is the first thing we do?" or "What time is it now? ... that's right, it's time to plan." As a child's comprehension of time concepts becomes more sophisticated, the teacher gradually phases out her verbal role while the child increasingly comes to verbalize his own schedules and plans.

PLANNING TIME

Planning Time is one of the hallmarks of the cognitive program. By making their own plans for Work Time, the children gain experience in carrying a task through to completion, in sequencing events, and in thinking before acting.

In order to make planning time as concrete as possible, each child has his own symbol--a two-dimensional shape such as a heart, car, house, or dress, cut out of yellow construction paper and bearing a full-length color photograph of the child with his name printed in large, clear letters.

Upon arriving at school the children remove their coats, use the bathroom, and sit down by their symbols, which are placed on the floor around a large circle. The children are then ready for Planning Time.

At the beginning of the year, one planning board is provided for each of the four work areas of the room--the housekeeping area, the block area, the art area and the quiet area. Each board is equipped with hooks spaced in such a way that each symbol is entirely visible and does not overlap with others. Each planning board is constructed on the object level. For example, attached to the housekeeping-area planning board are such things as a spoon, a cup and a doll's dress; the planning board for the block area displays a block and a realistic model car; on the art-area planning board are a crayon, a pair of scissors and a paintbrush; and on the quiet-area planning board are a tinker toy and a parquetry block. In the block area, besides the main planning board, tag-board pockets, each one big enough for one symbol, are attached to each piece of equipment. The number of pockets on each piece of equipment designates the number of children who can play there at one time. When all four pockets on the sand table, for example, are filled, nobody else can play there, until someone chooses to remove his symbol and go to another area. The other equipment with tag-board pockets are the piano, the water table and the tool table.

Later in the year, the four planning boards with real objects are replaced by one large planning board with photographs of each of the four areas (symbol level). Under the photograph of each area are magazine and catalogue pictures of the objects used in the work areas. By the end of the year, the photographs of the work areas are replaced by more abstract line drawings representing some object or action typical of each area.

During Planning Time, each child, seated on the floor, symbol in hand, tells what area he's going to, and demonstrates one thing he might do there.

Teacher: "It's planning time, Rene. Where are you going to work today?"

Rene: "The art area."

Teacher: "Rene, find something from the art area you want to work with and tell (show) us how you use it."

After each child has decided on a plan for Work Time, he places his symbol on the planning board in the work area he has chosen. After he has completed a task, he can then move to a different area, taking his symbol with him and placing it on the planning board in this area.

WORK TIME: THE QUIET CORNER

In the quiet corner, a table enclosed on three sides by low cupboards and bookshelves, a child can choose from the materials that have been placed on the table or the floor near the table. These materials are selected by the teachers to correspond to curriculum goals. Puzzles require that the child associate parts with a whole. For a child having difficulty with seriation, several "toys" that go together as seriated objects, such as nesting blocks, seriated barrels or rods, might be provided. As we observe a child playing with these materials, we attempt to assess the level at which he is operating, both verbally and motorically.

Observing the child's interaction with the materials also helps the teacher to decide when it is appropriate to interact with the child to enhance an experience or redirect it to avert frustration. For example, one for three successive days Mike (three years old) spent about 20 minutes in the quiet corner taking some small blocks out of one container, dropping them into another, and then putting them back into the first container. On the third day, he looked around in the cupboards for a different container in which to drop the blocks. The one he chose was clear plastic and was divided into compartments like a fishing-tackle box. He then incorporated this third box into his placement activity, repeatedly dropping one block into each compartment until they were filled. Then he picked up the large can that held the remainder of the blocks and poured them out on top of the already filled plastic box. Through these his attempts to fill different containers, it appeared that he was learning spatial concepts independent of teacher direction. Mike continued to show an interest in the blocks, but for shorter periods of time and with less innovation. The teacher then stepped in to "play some games," to extend his use of the blocks so that he might see how the blocks could be classified as to color, size or shape; or how they could be fitted together to build towers or fences. After the teacher's initial intervention, she again stepped back to observe Mike's independent use of the materials.

The quiet corner also affords an excellent opportunity for children to interact with other children; for example, a four-year-old will often help a younger child with a puzzle. The children often choose one of the books from the book-display rack, either to look at by themselves or with a teacher. The "listening center" (tape recorder and earphones) is also set up in the quiet corner upon occasion. Commercial or teacher-made books or pictures are the subjects of recorded conversations. As these are played back, the children can identify their own voices and with the books or pictures review their "story." The children can also listen to sounds they have made with musical instruments.

As in the other areas, putting materials back into drawers and on shelves contributes to the children's understanding of their functions and properties. The children practice seriation when they replace the nesting blocks, and classification by shape or color when they replace various kinds of blocks in their respective containers. The teacher not only encourages the children to get ready for the next activity, but promotes "cleanup" as a learning activity in itself.

WORK TIME: THE SAND TABLE

We have a sand table so that the children can find out how sand feels, tastes, looks, sounds, smells, changes, and causes other things to change.

Initially, all of the sand in the sand table was dry. The children played with it with no particular purpose in mind. Next they began pouring it through funnels and sifters and over objects without holes. Sand tools were then classified on the basis of having holes and not having holes as the children discovered that the sand went through funnels and sifters but not through plates and pans. When water was added to the dry sand, several children flattened the sand with their hands, pieces of doweling, and plates, discovering that when the sand was flattened, cookie cutters, muffin pans, jar lids, cups, spoons, knives, forks, cake pans and pie plates could be used for "printing;" the children explored hand prints, scissors, blocks, tire tracks made by Tonka Trucks, a live snake crawling through the sand, and rocks and sticks gathered from outside.

The children also talked about different kinds of foods that could be made out of sand. Carolyn (four years old) suggested making a birthday cake and a discussion followed about the parts needed to make the birthday cake. Carolyn decided to make a chocolate cake. She selected a "big bowl" and began scooping "flour" into it with a measuring cup. "Now we need some milk for the cake," she said, and went over to the doll corner for an empty milk carton from the refrigerator. Next, she partly filled the milk carton with water from the drinking fountain, returned to the sand table and poured a lot of "milk" into the bowl. Next she scooped "sugar" into the bowl with the measuring cup; then returning to the doll corner, she opened the refrigerator, found an egg carton with white clay representations of eggs, brought one to the sand table, and "cracked" it against the side of the bowl. She used her fingers to pick up a few grains of "salt," stirred the ingredients with a "big spoon," and announced that the cake was ready to be placed in the cake pan. The top of an adjacent cabinet was employed for baking the cake. After removing the cake from the "oven" with a "potholder," sand frosting was prepared and spread on top of the cake with a plastic knife. Carolyn then decided that she needed some candles--"they go with birthday cakes"--so she went over to the art area and selected red pipe cleaners and a pair of scissors. A lot of candles were cut from the pipe cleaners and placed on top of the cake. "We need some fire," suggested Carolyn, so she selected yellow construction paper and some paste from the art area, cut paper into small pieces, and on every red pipe cleaner pasted some yellow "fire." Using small sticks already in the sand table, Carolyn proceeded to "light" all of the candles. The candles were then "blown out" and removed from the cake; Happy Birthday was sung to Carolyn and birthday cake served to all. Later, Keith, Archie and Tammy asked Carolyn to help them make cakes.

While Carolyn was exploring the make-believe possibilities of creating a cake at the sand table, the teacher could observe that she understood certain concepts, such as a lot and a few, all and some, and on top of; the teacher could also see that Carolyn was able to make imaginative and relatively abstract representations.

OUTDOOR TIME

The purpose of Outdoor Time is twofold: the children use the large-motor equipment to develop physical coordination and concepts relating to space; they also observe natural objects and environmental changes.

A spacial concept is more likely to be internalized by a child if he can experience it motorically. The teacher can reinforce these concepts by verbalizing the child's actions in an interesting fashion, such as singing "Here comes Connie through the little tunnel; here comes Richard through the biggest tunnel." The large-motor equipment is also used in this way. Up and down the slide, forwards and backwards on the swings, above and below on the climbing bars are just a few of the many spacial concepts that can be incorporated in the child's self-initiated activity. Balls, ropes, wagons, a sand box and other outdoor equipment are similarly used.

The outdoor environment can be used for generating new interest in classroom tasks involving classification, seriation and temporal relations. For example, the children may have been using collage materials or other objects in the room to experience hard versus soft. Outdoors they may find grass, rocks, leaves, and sand to reinforce this concept. Later, the children might identify the objects in their collections through touch, smell, or taste. Experience with a variety of materials is a necessary first step before children can think about the objects in more abstract terms.

Physical phenomena brought about by seasonal change can also be observed. Long icicles hanging from the roof, for example, can help the children understand the concepts of freezing and melting. It is easier for a child to be asked about what he thinks will happen to something he sees than to be asked about something he has been taught but has never seen.

Outdoor activity cannot be termed free-play in the cognitive program, because the activities are structured around an objective, although loosely enough structured to allow for incidental experiences that might be relevant and timely. For example, we are often visited by the horse, pony and cows that belong to the farm on the other side of our fence. If some of the children show an interest in the animals, we help them observe some of the animals' descriptive traits: how they look, feel, move, and compare to other smaller animals we have had in the room. We might then look for footprints that indicate that the horse had been in the area and compare them to our own. This is particularly effective in the snow when even the tiny tracks of the pigeons that inhabit our belfry can be seen. The next day the children might recall some things about the animal they had seen the previous day and could be prompted to imitate the horse's actions or movements or construct a horse out of clay. Although few children would be able to draw or paint a picture of a horse, realistic pictures of horses and other animals could be shown to the children to help them differentiate between horses and other animals.

The child is usually self-directed during Outdoor Time, whether he is running through tunnels, shoveling dirt or collecting pigeon feathers. These activities provide opportunities for teachers to encourage verbalization, to reinforce previous conceptual learning, and to help a child see new relationships.

CIRCLE TIME: ENDING THE DAY

Helping the children move through the school day with an awareness of segments of time (short intervals within longer periods of time) is an important goal of the cognitive program. For example, Work Time is an hour-long block of time at the beginning of the school day during which the children may change their plans and work in several different areas. They are encouraged, however, to plan an activity and complete this self-designated task before moving on to something else. In this way, they are more able to recall time intervals and make future plans than they would be if they were left to move randomly about the room. First, next and last are terms frequently used to help a child formulate his temporal thinking.

The last period of the day, known as Circle Time because the children sit around a circle taped on the floor, focuses primarily on temporal relations. Circle Time gives the children a chance to recall the events of their day; it is also the period which means "the last thing we do before we go home." In reviewing with the children their activities for that day, plans can be verbalized for the following day. This is especially helpful to the child who has not completed a project or did not have time to work at a desired task.

Although it is often difficult to group the children together when they are tired or over-stimulated from the previous two hours, ways to move children from a small group to a large one can be devised. On cold or rainy days, the children go directly from their juice tables to Circle Time. One way to excuse the children from the table so that they may go individually to the circle is to have them whisper to the teacher the answer to some questions. These questions may pertain to something that took place during Juice and Group Time, such as, "Did you see anything inside of your apple?" A child may go to the circle imitating the movements of a certain animal. Sometimes the children are given some raisins to take up to the circle to eat. If they have been outside, they enter the room individually, often to quiet music, until they are all seated around the circle.

If there are more than just the few minutes for reinforcing the primary objective of Circle Time, that is, "this is the last thing we do before getting on the bus to go home" (temporal relations), we often have a game or a song that emphasizes spatial relations, such as Musical Chairs or Round-the-Circle. If we have recently visited a fire station, our songs may be directed toward helping the children recall the roles of the firemen and the equipment used (classification, symbolic level), perhaps through play acting (motor encoding, symbolic level). The children may use the rhythm instruments to experience loud and soft sounds. Stopping and starting using music or clapping as signals helps the children experience these temporal commands motorically. This is only a sampling of the many short but significant experiences that may be incorporated during Circle Time. Traditional songs and games can be modified to fit specific objectives.

The children are dismissed from Circle Time to their cubbies or the bus in some special, individualized way, such as singing names along with directions like "hop to your cubby."

SCIENCE: DEVELOPING AN ATTITUDE OF INQUIRY

In the cognitive program, we do not think of science as a separate entity, but rather as an attitude of inquiry which permeates all aspects of children's learning. Preparation of the environment is essential; the materials for exploration must be appropriate to each child's level of operation and representation. As a basis for understanding how a child learns, Piaget says that a child must assimilate his environment before he can accomodate new thought patterns into existing ones. Concepts are not externally imposed on a child; they are attained through experience. Although learning is self-directed, the teacher helps the child see new relationships by asking questions relating, for example, to an object's structure: "What does it look like?" or its function: "What does it do?" These questions are usually more appropriate than "why" questions, which demand an explanation and thus a level of sophistication the child may not have attained. Questions which ask for a prediction: "What do you think will happen if...?" also help the child make associations and formulate his thoughts. One of the main goals of the cognitive program is to help the children become good observers and gatherers of information from which they will later be able to make sound inferences and predictions.

Classification tasks, like putting all the big blocks together on one shelf and all the little ones together on another, help the children begin to think abstractly. By learning to group similar objects together, they are forming the basis for the understanding that all scientific laws are generalizations about classes of objects rather than about specific objects themselves. By classifying objects, a child observes object properties and characteristics--a lizard has legs and a snake just wriggles--change, interaction and systems of interacting objects. All of these concepts are integral to the child's nascent understanding of cause and effect. The children observe cause and effect relationships as they watch fish in an aquarium and the birds and animals in and about the schoolyard.

A playful situation may stimulate discovery. Children become much more involved in observing properties of magnets, for example, if they can play a game such as "fish," in which paper fish containing paper clips and rubber bands are "fished" for using magnets.

The children in the cognitive program are given an opportunity to explore a wide range of materials in order to discover their properties and functions and understand the relationships among them. The classroom environment is changed over the year, new materials are added to the old, in order to extend concepts already learned and lay the groundwork for the learning of new concepts.

MUSIC

Although there is no particular time set aside each day for music, the children often sing and listen to records, the piano or the guitar during Circle Time. These music activities generally stress a specific concept, such as up and down, which can best be learned through body movement. Another example might be a song stressing role-play, such as "What does the fireman do?" Because it is necessary for children to become involved in order to learn, singing abstract verses while sitting passively is not a part of the cognitive program. Songs must be relevant to the children's experiences, utilizing catchy rhythms and uncomplicated melodies.

We introduce music to the children on the object level--real instruments are available for the children to hear and play. The sounds they make are recorded and played back, so that the children can identify the instrument on the index level through the sound it makes.

During Work Time, the children may choose to play instruments that have been put out near the piano. They need to find out for themselves what they can do with the instrument and what sounds it makes. The teacher does not show them how to play it, unless she is asked to. When the children are ready, she may help them to learn the attributes of the instrument, how it makes a sound, and how it is different in sound and attributes from other instruments. Or she may say, "Play fast or slow, high or low, loud or quiet." Later she may demonstrate a more refined way of playing the instrument, not so the children will imitate her but to show them that another sound that can be made with the instrument. The children may want to move like the music tells them or start and stop their movement according to the starting and stopping of the music. Children can further experience the sound an instrument (or a voice) can make through recordings. The pleasurable aspects of listening to music should not be overlooked. The children should have the opportunity to move and generally express their feelings about what they are hearing. Our children have particularly enjoyed the music of Aretha Franklin and the Beatles.

The classroom need not be elaborately equipped with instruments. It is fun and meaningful for the children to make their own, or to use available objects as instruments (representation). For instance, after the child has had an experience with a real drum, he could be asked to look around the room and find something that could be used as a drum, like a bowl or pot from the doll corner. Children can also classify objects according to whether they make, for example, loud or soft sounds. They can make rattles using two small foil plates stapled together containing beans, paper clips, etc., with a tongue depressor for a handle; these are good for sound discrimination--loud vs. quiet. The children can string bells of different sizes and colors on elastic for shaker-bells. Different objects can be used for hitting a drum, again with the emphasis on associating certain sounds with certain objects and classifying these sounds as to quality. In this way, the children can begin to see that music and sounds of all kinds are related, and that objects other than musical instruments can be used to make musical sounds.

ART: LEARNING TO REPRESENT THE ENVIRONMENT

As in other activities planned for the children in the Cognitive Program, specific objectives determine the selection of materials and methods incorporated into art experiences. These objectives are based on the child's mental and motor level of performance and his own interest, rather than on goals arbitrarily set by the teacher. Children must have the opportunity to satisfy their desire to manipulate the art materials before they can begin to use them to make representations. Exploration of the art materials at the object and index levels must precede using them to represent real objects at the symbolic level.

The child must also experience the real object before he can represent it with a variety of materials. For example, the child can get to know a live turtle by touching and watching it, with the teacher calling attention when necessary to its various parts and attributes. Then paper plates may be set out to suggest the turtle's shell, and bits of paper, pipe cleaners, etc., can be used to complete the representation. A child who has not yet developed his ability to represent on a high level may be content just to color the paper plate to correspond to the color of the turtle's shell. A child with a clear mental image of a turtle could probably form a likeness of one out of clay, naming parts and attributes as he proceeds. Another child may represent a turtle by pantomiming the turtle's movements.

A variety of materials should be given so that a child can represent in a way that is self-determined rather than teacher-directed. The children should not copy a model, nor should they be directed in assembling the parts to form a whole. An experience with the real object, with the teacher's assistance in pointing out the relationship of the parts to the whole, will enable the child to see part-whole relationships in other contexts.

Practically anything can be used as a medium for artistic expression. Similarly, any number of concepts and cognitive skills can be adapted to activities which children enjoy. Here are a few examples of cognitive skills and corresponding conceptual experiences using art media:

skills	experiences
1) Classification:	Colors that are the same; similarity of textures in collage materials
2) Seriation:	Different-sized hearts for Valentine making; colors from light to dark
3) Ordering or Patterning:	Establishing a pattern; repeating it
4) Spatial Relations:	Placement, as in drawing features of a face; making a design; creating a 3-dimensional

		representation of an animal (e.g., with clay)
5)	Temporal Relations:	A project which takes several sessions to complete
6)	Predictability & Causality:	Predicting what will happen if blue and yellow are mixed together; observing the result

AN EXPERIENCE WITH PET STORE ANIMALS: CLASSIFICATION OF ANIMALS PROGRESSING THROUGH THE LEVELS OF REPRESENTATION

Children learn about what is interesting to them, so we chose pet-store animals for our work on classification skills. Before visiting the pet store, the children had several opportunities to see and touch animals in the classroom, including snakes, a lizard, and a cat. Each time an animal was introduced, the children were helped to look at it, feel it and make comparisons, so that they would come to know the animal well enough to be able to pantomime the way it moves or make their own representation of it. The children, having experienced the live animal (real object) were encouraged to "be a snake." Materials were available to "make a pretend snake that looks like the live one."

After several successful encounters with animals, we were ready for our trip to the pet store. Our main objective, besides providing an enjoyable and meaningful time for the children, was to give them further experience with descriptive classification of animals, and with the pre-number concepts of a lot and a few.

During Planning Time, we emphasized the change in daily routine because of a special trip (Temporal Relations). A variety of objects were assembled to help stimulate responses on different levels of representation (from object to symbolic). Using a lizard in a cigar box (real-object level), a "feely" bag concealing fur and feathers (index level), photographs and drawings plus a movement song about a variety of animals (pictures and movement both on symbolic level), the teachers observed the levels of operation on which the children responded:

Tammy (3) clapped her hands on her knees and shrieked "lizard!" when the teacher exposed the contents of the cigar box. Ike (3) jumped up to have a closer look, saying nothing. Ann (3) remained composed; she had not shown a lot of enthusiasm over the lizard's initial appearance in the classroom. Karin (4) pointed out that it was a lizard and not a snake because it had legs.

When talk of the lizard subsided, the teacher brought out her bag, and singing a "bag song" to focus the children's attention, she held the bag for each child to feel and guess the contents (index level). Rhonda (4), wary of what might be concealed, indicated that she preferred to look rather than feel with her hand. Carolyn (4) responded with "Soft, feathers." Vanessa (4) said, "Not a snake," with a tinge of relief in her voice. Nearly all of the children verbalized answers together to questions such as, "Are there feathers on a snake?" "Did the lizard feel like this?" (holding up a piece of fur). Only a few of the children (4's) knew which animal had feathers, and several more responded with "Cat!" when the fur was held up.

Polaroid pictures taken of our experiences with animals in the classroom were shown to the children, renewing their past mental images of the animals (symbolic level). Responding to the pictures of a snake, Rodney (4),

Keith (3) and Karin (4) immediately wriggled around on the floor (motor encoding, symbolic level). Rene (4) said, "That's Mark with that snake," pointing to the picture.

Holding up some realistic pictures (symbolic level) from the Peabody kit, the teacher asked which animals had fur, feathers, a tail, etc. Paula (3) responded with "Woof, woof" upon seeing the picture of a dog. Richard (3) and nearly all of the 4's verbalized answers in unison.

The children were shown a fishbowl and a box of fish food with a picture of a fish on the label. Asked "What could live in this bowl?," Mark (4) said, "Water." The teacher responded with, "Yes, we could put water in the bowl, and what could live in the water?" Rene (4) said, "Fish!" Vanessa (4) chimed in "Turtle!" Karin said, "No, fish!" The fish food helped to substantiate Karin and Rene's answers. Vanessa got up and ran to the doll corner to get a large plastic pitcher. The teacher asked, "Do we need the water yet?" Several children said no, because there were no fish. "Where could we get some fish?" "At the fish store," said Richard (3). "Will we see other animals, too?" "Yes! Birds, dogs, snakes!" shouted several children.

To end the planning session, a song was sung and acted out by the teacher, most of the children joining in with the motions and an occasional word of the song. One of the verses goes: "I have a fish; my little fish goes swish, swish, swish" (accompanied by holding hands together and making fish-swimming motions). Carolyn (4) and Tim (3) clearly said "fish" and "swish" along with the hand motions. Teresa (3) moved her hands in a rather vague interpretation of what she saw the other children doing.

The children were dismissed from Planning Time and went individually to their cubbies to put on their coats; each child was asked to be a snake, a lizard, a cat, a dog, etc. Karin (4) said, "I want to be a bird," and proceeded to "fly" to her cubby--she has a bird at home. Rodney made a snake-like movement to his cubby. Tammy (3) and Ike (3) did their own versions of a hop and a skip, not really trying to be anything but their own exhuberant selves.

As we left the room, the teachers helped the children to recall the destination and purpose of the trip. Emphasis on leaving the building to go to another place, via the bus, was stressed (Spatial Relations).

On the bus, the teachers played verbal games with the children pertaining to the kinds of animals to be seen (e.g., body parts of particular animals). Simple motor encoding with finger-play and "nonsense" statements were used also. Because we had been stressing the pre-number concepts of " a lot" and "a few," we asked the children questions pertaining to these concepts as we observed the increasing density of houses and buildings while driving into town. As we drove by a subdivision, some children remarked that there were "a lot of houses" there, and that further down the road there were just "a few." Karin (4) remarked that there were "a lot of people living in that building," as she pointed to an apartment building.

Inside the pet store, the children looked at the wide variety of animals. The teachers asked questions for the purpose of getting the children

to group the animals simply as pet store animals that are different on the basis of physical attributes like fur, feathers, skin, tails, size, sound (Classification, object level).

Archie (3) went right to the snake cage, saying, "That's a snake." How could he tell? "Because it's long." How did he know it wasn't a lizard? "It doesn't have legs." Carolyn (4), restraining herself from reaching up to pet the perched parrot, said, "It's soft; it has feathers all over it." Rene (4) said, "Rat!" when a cage of gerbils was pointed out to her. She kept her distance, not wanting to get near them. Rhonda (4), who last year was terrified of all animals, stood quietly next to a teacher and watched. Mark (4) pulled a teacher by the hand over to the cage of monkeys. "I like those, they're monkeys," he said. "That cage has a lot of birds," said Ann (3). "Are they big or little?" "Little! There's a big one," she said, pointing to the parrot. The pet store proprietor took a monkey from the cage. It made a loud screeching sound and Rodney (4) covered his ears, saying "That's loud!" When the man started to take the snake from its cage, Rodney was asked if it would be loud, too. "No, snakes don't make noise," he said. Vanessa (4) was watching some newborn gerbils nurse. She thought they "looked funny because they didn't have any fur." "Will they have fur when they grow up?" She didn't respond. What kind of animals would they be when they grew up? "Gerbils!" she said. (Predictability)

We then went over to the aquarium section to look at the fish. The teachers told the children to find a tank that had "a lot" of fish, and then one that had just "a few" (Pre-Number, object level). "This one's got lots of black ones," said Richard (4). Mark (4) took a teacher by the hand over to a tank that contained two large fish, about 9 inches long. Were there a lot of fish in there? "No, two big ones," he said. "All black ones," said Keith (3) as he looked into a tank. A teacher pointed out some different kinds of fish close by that were black also. Although there were many dissimilar features, Keith pointed out that these other fish were "bigger, have big tails."

Recalling what equipment we already had back at school, we talked about what we needed for our classroom fishbowl. "We need fish!" said Carolyn (4). How many could we buy? "A few." Why? "Because our bowl is little." "And we need those little bitty rocks for the bottom and that green stuff in the top," said Karin (4). "That green stuff'was seaweed; however no one knew it by name. We made our purchase and thanked the store owner for all his time and attention. One-half hour after our arrival, we were boarding the bus to return to school.

At Juice Time, we served small fish crackers, asking the children to take "a few" out of the basket, which contained "a lot." Did they have a lot or a few on their napkins? "A few," said Keith (3). "Just a little," said Ann (3). How many were in the basket? "A lot." We also used this opportunity to recall the events of our day, where we had been and what we had seen (Temporal Relations).

For the last activity of the day, at Circle Time, we assembled our aquarium. The children sat around a circle while a teacher held the aquarium

on her lap. What did we need before we could put the fish in the bowl? "Water!" said Vanessa (4), and she repeated her earlier action of bringing the pitcher of water to be filled. The pitcher was tall and the bowl short and wide. Did she think all the water in the pitcher would fit into the bowl? (Predictability) "No, there's too much." When the water level came up to only half-full, she looked a little puzzled and said, "We need more." Since the small rocks and seaweed were still concealed in the bag, the children had to recall what else they had to put in the bowl. With the help of individual children coming up to put in a handful of rocks or a bit of seaweed, verbalizing as they did so, the aquarium was made ready for the two fish.

As they went to their cubbies, the children were asked to pretend to be some animal that they had seen at the pet store (motor encoding, symbolic level). There were some interesting versions of fish, birds, and monkeys, but some of the 3's could only hop or walk.

Next day in the Art Area we introduced an activity that would stimulate the children to represent the fish in their container. We provided certain kinds and colors of paper to suggest the fish and other materials in the bowl: green tissue for seaweed, light blue paper for the background, gold or black for the fish, gray for the gravel and celephaine for the top layer to suggest glass (Classification, symbolic level). Scissors, crayons, a paper punch and paste were the tools. Karin (4) drew and cut out her fish, putting eyes and a tail on in crayon. She cut a fringe on her strip of crepe paper to resemble the seaweed. Mark (4) drew a large fish but had difficulty cutting it out. A teacher helped. He made gravel by punching holes in gray paper. Ann (3) said she couldn't draw a fish (she had been enjoying the process of spreading paste all over her paper) and asked a teacher to draw one for her. The teacher drew a vaguely representative shape and cut it out. Ann then proceeded to draw one, too. Rene (4) drew two eyes and a mouth broadside on her fish. Clay was also available. Most of the clay fish forms looked more like snakes than fish. Teresa (3), pounding her clay, provided a rationale for this by saying, "I don't like fish."

Cognitive Program LESSON PLAN

time/area	goals	levels	activities/materials	innovations
Planning Time 1-1:15	Temporal relations	Verbal	-Discuss change in procedure: not working in classroom because we're taking a trip to the pet store.	
	Classification (descriptive)	verbal/motor object (real) index (parts of animals, cues) symbolic (pictoral representations) (motor encode)	-Motivate interest with the following: -Live lizard -Bag of fur, feathers -Polaroid pictures of animals previously taken in classroom. -Realistic pictures of animals and not/animals (Peabody Kit). -Children act out fish action song	
	Pre-number (seriation)	Object Symbolic	-A lot and a few fish in aquariums	
Bus rides 1:30-1:45 leave 2:15-2:30 return	Spatial relations Pre-number (seriation)	Object and Symbolic	-Children going from school to the pet store -Observation of what children see around school, (a few houses); on trip (more houses); and downtown (a lot of buildings).	
At Pet Store: 1:45-2:15	Classification	Object and Symbolic	-Children observe animals, attributes -In aquarium area, ask which tanks have a lot of fish; which have only a few. We buy a few fish to take back to school Children recall what else is needed to complete our fish bowl at school	

Bathroom and Juice Time 2:30-3:00	Pre-number (seriation) Temporal relations	Object and Symbolic (verbal recall)	-Fish crackers in basket and on napkins (a lot and a few). -Review what was seen at pet store	
Circle Time 3:00-3:15 Dismissal	Classification	Symbolic (recall) (motor encode)	-Children recall what we need to make our own aquarium, like the one at pet store, with things we bought -Children "act out" animals on way to cubbies	Responses of children
Forward Look (next day)	Classification	Symbolic	-Children can represent fish bowl and contents with art materials	See attached summary of pet store trip

A CHILD'S RESPONSE TO AN EXPERIENCE WITH A LIVE SNAKE; HIS PROGRESSION FROM THE OBJECT TO THE SYMBOLIC LEVEL

Mark, a four-year-old, came cautiously over to a table where the teacher was holding a live snake. He called it a snake, but said little else about it as he carefully scrutinized its movement over the teacher's hands and watched it wriggle slowly across the table. Beginning with a gingerly touch of the snake as it was being held by the teacher, he was soon putting it down on the table to watch it wriggle and picking it up again to examine more closely the parts of its head. Soon he was talking about the features of the snake: "His mouth is little. He got no teeth." Pointing to the snake's top-side and then to its underneath, he said the appropriate color names: "green, yellow." The goal here was to help the child understand and develop the representations appropriate to the concept of "snakeness."

Mark was initially interacting with a real snake on the Object Level. In order to see if Mark could relate cues or parts of the snake to the whole snake, on the Index Level, we did several things. First, Mark looked at the snake on the table among inanimate objects, including a piece of clay that I had rolled to look like a snake. He repeatedly identified the snake (Object Constancy) from the array of other objects. He then put the snake back into the terrarium which contained sand and a large rock. The snake crawled under the large rock leaving only its lower half exposed. When asked to identify contents of the terrarium, Mark verbalized "snake" from the cue of the exposed part. He then lifted up the rock to expose not only the snake already familiar to him, but a smaller one which he had not yet seen. He replaced the rock, partially exposing the big and little snakes. He again surveyed the contents of the terrarium, verbalizing what he saw ("big snake, little snake"), with just part of each snake exposed (Object Permanency). The snakes and the rock were then removed from the terrarium, leaving indentations representative of their size and shape. Mark identified the impression in the sand left by the rock and those left by the two snakes (although less easily because of their lack of weight). It was obvious that he could causally relate the marks in the sand to the real objects.

This was the beginning of Mental Imagery, on the Symbolic Level. The snakes began to move in different directions across the table. As if to contain them, Mark brought an empty box to the table and placed the rock and the snakes in the box. Mark called this temporary refuge his "snake house." To see if Mark could use objects to represent other objects,

the rock was moved from Mark's "snake house" to the terrarium, with directions to "find something that we could make believe is a real rock." He took a lump of clay and put it in the box with the real snakes (his "snake house"). The snakes were then put back in the terrarium "to rest a while." When asked, "What could you use for a snake?" Mark responded by placing the previously rolled clay snake into the box. He moved it with both hands to simulate the wriggling action of the real snake (Imitation). When asked if he could "move like a snake," Mark first took the real snake from the terrarium, and they crawled around on the floor together. The clay snake was then placed on the floor alongside Mark and the real snake. To questions pertaining to the movement and reality of the snake versus the clay representation, Mark responded that "this snake moves - it is real," pointing to the real one, and "this snake won't move - it's not real," pointing to the clay snake.

The snakes (real and representative) were then put back on the table where Mark could not see them from the floor. After some verbal prompting he was able to "be a snake," wriggling on his stomach from side to side, his arms close to his body so as to look as if he did not have any. A chair was placed for him to crawl under, as the real snake would under a rock. This is an example of how in Dramatic Play, objects are used to represent other objects.

Since the snakes needed another rest, Mark was asked to make a make believe snake from the wad of clay before him. He rolled the clay into a cylindrical shape on the table with the palm of his hand. Whether he was imitating my previous actions on the clay or rolling it from his own intuitive thinking, I could not tell. When the snake was completed, he pointed out that it had a head and a tail. He then took his clay snake to the chalk board and proceeded to draw around it with chalk, outlining its shape. When asked if that was a picture of a real snake, Mark put the clay snake down and got the real snake to put up against the board. It wriggled, and even though Mark had a difficult time drawing its outline, he was able to make a zig-zag line, indicating that he could visually represent a real snake and one that was not real. The work period then came to a close.

The next day Mark drew a representation from memory of the snake. He chose a green and a yellow crayon, making two corresponding lines fairly parallel to each other. Some of the children who also had observed the snake the previous day made snakes out of paper. Vanessa found some strips of paper about 2 inches long and stapled the strips together at angles to make them appear "crooked" like the snake.

The following day on a field trip to the pet store, the children observed a much larger snake. Poloroid pictures were taken of it so that the children would more clearly understand the relationship between the real object and the pictoral representation. Later, the children

were able to recall and identify (parts of) the real snake from the photograph. We repeated this procedure with a picture of the small snake. A wooden snake that moved and a rubber life-like snake were also introduced to give the children further experience with representations of a snake. Similarities and differences between the real and the non-real snakes were stressed.

USE OF PUPPETS, BEGINNING WITH OBJECTIFICATION OF SELF AND MOVING SEQUENTIALLY THROUGH THE LEVELS OF REPRESENTATION

The young three-year-olds at their group table had mixed reactions to a hand puppet of a dog used for helping the children increase and focus their attention. All of them focused directly on it, three of them with smiles. Tammy and Timmy did not want to touch it. They pulled back their hands and shrieked. The following day when the puppet was used at the next table, another three-year-old, Paula, responded in a similar way. All children were told that the puppet was not real. They were shown the puppet lying motionless on the table. They saw it being put on the teacher's hand and could clearly see the extension of her arm, as well as hear her voice as the voice of the puppet. Since the puppet represents a high symbolic level, a sequence of experiences was developed which would gradually help the child progress through the levels of representation, beginning with concrete object-level experiences. These objects and activities are to be used sequentially, the timing determined by the responses of the children. Each step should be internalized before proceeding to the next. The sequence follows:

I. Whole Body Concept - Object Level (the child himself)

"Who are you? "

Concept:		The child has his own identity. He is different and separate from all other things and people. He has a name.
Activities:		Sing directed statements to child. Verbalize his position in space, his name, what he is doing, etc.
(object level)		Other children help to sing and verbalize each other's names, positions, etc. Use absurdities, such as, "This is Miss Sue" when it really isn't.
(index level)		Children identify each other by voice, clothing, etc. Child, with eyes closed, tries to identify another child by his voice.
(symbol level)	1.	For identification of self and relation of self to objects in space, take poloroid pictures of each child individually; as part of a group of children; in relation to an object in space; moving in space.

2. Children motor-encode (act out) what they see in pictures, such as a child jumping; the pace of a movement set by music or clapping; the action of the child on an object, such as how he would look if he were climbing stairs.

3. Give children opportunities to study themselves in a mirror for self identification and for relation to objects in space: "Look in the mirror. Who is next to you?"

4. Large drawings of children can be made by tracing around each child. Child helps to place and color features, clothes. These large drawings can then be hinged for movement of parts, which can be correlated to the child's movements. This is the first step toward breaking the whole into parts.

5. Use a doll, the larger the better, as a representation of a child; the real vs. the non-real.

Concept: Directional movements allow child to see himself move through space, 1) as an object separate from other objects in space and 2) as an object related to other objects in space.

Activities: 1. Using large motor equipment, the child can experience concepts of himself in space (slide: climbing up, going down; teeter totter: up/down and on/off; swings: back-and-forth movements).

(object level)

2. With his body, the child can experience concepts of objects in space: through the tunnel, around the slide, in the box, etc.

3. Hop Skotch can be modified to help children place feet on colored squares.

4. Children can move in many ways that differ laterally and in motor pattern: walk, crawl, jump; movements with a change of pace ("now walk slowly;" tiptoe); movements imposed in and around a place ("walk around the tree"); or movements implying a change of direction ("walk backwards").

II. Separation of the Whole into Parts - Moving from Object to Index Level

"What is this part? What is it a part of?"

Concept: Object Constancy (a hand is still a hand when viewed in a mirror or in a different position).
Real vs. Not Real (child and doll)

Activities: A. Body parts corresponding to and identified with the child

(object level)

1. Child locates parts on self and on other children. "Touch your leg with your hand." "Whose arm am I touching?" Absurdities, such as, "I'm putting my boots on my hands so I can go outside."

(index level)

2. Children identify body parts by index or cue.

   a. With his eyes shut, child identifies part teacher has touched.

   b. Children observe footprints and handprints in the sand or snow.

(symbol level)

3. Finger play emphasizing body parts: "Open, Shut Them;" "These are grandma's glasses, this grandma's hat, this is the way she folds her hands and puts them in her lap;" "Two little feet go stamp, stamp, stamp, two little hands go clap, clap, clap;" "This is the way you saw the wood;" "This is my eye, this is my ear, this is to see, this is to hear."

4. Children motor encode spatial positions and actions on objects: "Show us how your hands make a snowball."

5. Whole and parts of smaller doll

   a. Relate parts of doll to those of child.

   b. Name doll, stressing that she is not real.

   c. Take the doll apart and reassemble her.

   d. Dress the doll, relating clothes to parts.

6. Use stand-up paper doll in the same way as above.

7. Use pictures of the children for identification of parts and their functions. "What are these?" (hands) "Can you find them on Ike and touch them? What can you do with them?"

8. Children make self-drawings, verbalizing position, and identify the parts.

9. Children are shown pictures of real children and paper-doll drawings to help them distinguish between real and not real.

10. Make sock-puppet at table; glue on parts of face, use fingers inside sock for arms, yarn for hair.

    a. Let children touch teacher's hand (in same position as used inside puppet) and then touch puppet with teacher's hand inside.

    b. Stress parts; the concept of "not real."

    c. Let children hold puppet and talk for him.

11. Use 6-inch-high rubber life-like people for similar activities (part-whole; real and not real).
Introduce role-play

12. Use rubber hand-puppets of familiar people (boy, girl, Mom, Dad).
Let children use puppets, take roles.

<u>Now Introduce An Animal Puppet</u>

1. Go to a farm or pet store to gain experience with the real animal, in this case, a dog.

(object level)

2. Let children become familiar with stuffed dog in Doll Corner.

3. At group table stress a) whole and parts corresponding to those of the children, and b) real vs. make-believe.

(index level)

4. Children identify parts of dog by touching the stuffed dog while their eyes are closed.

(symbol level)

5. Use colored drawings of dog as with paper dolls (above).

6. Introduce hand puppet of dog, being careful to show how the hand fits inside to make the puppet move.

   a. Stress real versus make-believe.

   b. Let children manipulate puppet; role-play.

7. Use the people puppets and dog puppet together. Stress similarities of parts; role-play; real vs. make-believe.

PLAN AND EVALUATION

Cognitively Oriented Class

Ypsilanti Preschool Curriculum
Demonstration Project

November 11, 1969

Teachers: Mrs. Jean Kluge
Mrs. Sue Anne Smith

Aide: Mrs. Alice Hudson

PLAN

		GOALS	ACTIVITY
PLANNING TIME		Objectification of Self: learning each other's names	Name song
		Temporal relations: sequence of events	Recalling events of yesterday
			Talking about the sequence of the day
		Relational Classification: learning about the properties of the objects in the environment and the organization of the room (Spatial). /object level/	Game: bring back something from the Art Corner etc. talk about what you could do with it.
WORK TIME	Art corner (Mrs. Hudson)	Classification (relational: continuing to learn about the materials in the Art Corner. Relating materials to one another: e.g., paper and paste).	Collage making with randomly cut pieces of paper. Discussing process of pasting, exploring the new medium of paste and collage materials.
		Spatial	Learning which side of the paper will stick when pasted.
	Quiet corner	Seriation (comparing lengths; number concept: "2") /object level/	Familiarize children with Playskool blocks.
	Block corner (Mrs. Smith)	Spatial relations: on-off using object and objects.	Block construction, cars and roads. Discuss spatial positions of these objects.

Doll corner	Temporal relations: sequencing of events. Transformation of materials over time. Descriptive classification; wet, dry, etc.	Make play-dough
	Role play	Involve children in role play as dough is being made; baking in the kitchen; mother, father role, etc.
Sand table	Index level representation of objects.	Printing in the sand with cookie cutters, hands
Quiet table II (Mrs. Kluge)	Representation of an object at several levels (object, index symbol) Descriptive classification	Handle and observe a real snake. Describe it (color, body parts, texture, etc.) Make models of it out of clay. Chalk pictures of snake. Motor encode snakes crawling.
CLEANUP & EVALUATION	Temporal relations: recalling past events	Help children learn to clean up at area they had most recently been working in.
	Descriptive classification	Review sequence of morning; what did you do. Point out that juice time will be next. Calling attention to characteristics of objects as they are put away.

EVALUATION

RESPONSES OF INDIVIDUAL CHILDREN	ANALYSIS	FORWARD LOOK
PLANNING TIME Vanessa confused quiet and art corners. We had her go to the quiet corner and bring something back.	Children were somewhat restless, though seemed to be doing well on learning to plan and to identify the Corners and talk about objects in them. Three-year-olds still not talking very much. This planning time was <u>too long</u>.	Move next time into more verbal discussion. Let the children <u>tell</u> what area objects come from that are pulled out of the Mystery Bag. See whether Vanessa still confuses the quiet and art corners. Try a shorter planning time by having children choose in a group rather than individually tomorrow.
WORK TIME <u>Art corner</u> Rhonda made a face with her collage materials, spontaneously.	3's explored materials, 4's may be becoming interested in representing objects.	Provide materials to allow 4's to explore two dimensional representation: strips of green and yellow paper which may be pasted to form a "snake" such as seen in class today. Introduce other fastening materials: staples, tape.

Doll area	Should have been more opportunity for child participation in the actual making of the play dough. Idea of "baking" in the kitchen area of the Doll corner to stimulate role play didn't pay off because children too interested in the process itself.	Need more structure to allow children to participate: assign jobs (stirring, etc.) to individual children, limit number of kids participating at a time, and do activity in an area where there is more room and furniture etc., better protected. Possibly try play dough in kitchen again after children are familiar with making it.
Doll area II Tim was interested in the mirror, recognizes himself. To see if he could use objects to represent other objects the rock was removed from Mark's snake house, and he was asked to "find something that we could make believe is a rock." He chose a lump of clay to put in the "snake house" with the real snakes. Also represented the snake by wriggling a clay "snake." When asked to move like a snake, Mark took the real snake from the terrarium and crawled on the floor with it. Mark identified the live snake as the real snake, "because it moves." After some verbal prompting he was	Mrs. Smith became involved in this area with several 3's. Worked on body parts represented on a doll; elementary role play.	

Quiet corner	No teacher in the area today, therefore not observed.	
Quiet corner II (Snake) Mark watched and then handled the snake. Examined the head and noted "His mouth is little." Also described snake as green and yellow. Mark could easily identify the snake from among inanimate objects and the clay snakes. Put snake in terrarium and watched it crawl under a rock. Lifted up rock to expose snake and found another smaller one which he had not seen before. When questioned Mark could identify the impressions in the sand as being made by the two snakes. Took a box which he called a "snake house" and made it a temporary refuge for the snakes.	The snake of course proved a popular "attraction." Some children were able to represent the snake at a number of different levels, others were mostly learning about the snake at the object level. Mark (see column at left) obviously "understood" the snake enough to recognize it from its parts, as when the tail was sticking out from under the rock; he also recognized its tracks in the sand (both of these are Index Level). The Symbolic motor encoding activity (wriggling like a snake) was mastered by several of the children, though the younger ones didn't necessarily connect it with the snake. The snake was a good object to choose for learning about Symbolic representation because it was comparatively easy to make models and drawings of it.	We will next want to see whether some of the children can represent the snake from memory, using crayons (green and yellow) and paper strips. Also planned: observe a larger snake at the pet store (field trip). Take polaroid pictures at the pet store, to be used later to recall the trip, parts of the snake, etc., at the level of pictorial (symbolic) representation. Also introduce photographs of the small snake, and models (wooden and rubber) of snakes. Stress similarities and differences between real and model snakes.
Block corner Timmy didn't seem to understand "on" and "off."		Set up different situations with different blocks and trucks: continue working with Timmy.

able to imitate the snake's motion, hiding his arms, on the floor. He crawled under a chair, as the snake had crawled under a rock. Mark drew around a clay snake with chalk on the board, pointing out that it had a head and a tail. Mark also was able to represent the real snake's motion by holding it up to the chalk board and copying the zig-zag pattern.		
<u>Sand table</u>	Today this was a self-directed activity with little teacher intervention. Children did explore prints made by objects in the sand. Decided to introduce snake (the real one) into the sand table to study its track (index level). This works only with <u>dry</u> sand.	With teacher present, study how prints in the sand are related to objects. Relate to prints in snow and mud outside, making comparisons from memory.
CLEANUP Keith went to different areas rather than cleaning up where he had been working.	Goals not very clearly implemented. Children did not get enough guidance to prevent random behavior.	Children need more specific direction during cleanup: (You put the cups away and I'll put the saucers away, etc.) Timmy especially will continue to need much praise and/or raisins as rewards for cleaning up.

Group time Mrs. Kluge's group: Theresa and Tammy unable to recognize body parts from picture.	Photo still too high a level for some of the children.	Work on body parts with mirror and dolls with Tammy and Theresa. For dismissal from snack table: teacher touches child's hand, nose, etc. Child, with eyes closed, identifies what teacher has touched before leaving table. Later on play the same with prints.
Mrs. Smith's group: Mark had trouble pretending to stir without a real spoon, needs more experience with the actual implements.		
Circle time	Children had trouble remembering verbal instruction and combining this with the actual ability to stop on signal.	Try at first to pair verbal cue with stopping of music. Get children to tell in advance what they are going to do.